

Module 29

Communications

Learning Objectives

By the end of this section, you will:

1. Know when signal person should be used.
2. Know the rules for signal persons.
3. Understand factors to consider when using voice signals.
4. Know elements of voice signals.
5. Know qualifications signal person must demonstrate.



How are messages and warnings communicated on a job site?

- » Daily meetings and reports.
- » Audible signals.
- » Lights.
- » Barricades.
- » Literature.
- » Posters.
- » Placards.
- » Signs.

Site Meetings

Expectations, responsibilities and limitations must be established at site meetings.

Site meetings keep everyone informed as to how things are going. Expectations and limitations must be established. Responsibilities and authorities must be known.

Safety must be of utmost importance.

What are the essential elements of a safety briefing?

- » Potential hazards.
- » Equipment problems.
- » Environmental conditions.

Signal Persons

When must signal person be utilized?

- » Operator can not see the path of the crane components or the load.
- » Operator can not make distance or angle judgments alone.
- » When the crane is within a boom's length of the limit of approach to power lines or electrical equipment.

The signal person and the crane operator should identify each other by name.

- Prior to beginning lifting operations using voice signals the operator and signal person shall contact and identify each other and the signals must be agreed upon.
- All directions given to the crane operator by the signal person shall be given from the operator's direction perspective (e.g., swing right).



1926.1421 (a)



1926.1419 (k)

When loads are to be picked in one place and placed in another, two separate signal person may be required.

Rules for signal persons using hand signals:

1. Be in clear view of the crane operator, have a clear view of the load and the equipment, keep persons outside the crane's operating area, never direct a load over a person.
2. Hold your hands away from your body so that the operator can clearly see them.
3. Always give signals according to the operator's perspective.
4. Do not give more signals than the operator can perform at one time.
5. Use a secondary person to transfer hand signals when you can't see the operator.
6. Always watch the load, the crane operator is watching you.
7. Always keep the crane outside the encroachment distance from power lines.
8. The signal person should not have any other duties.
9. The designated signal person must be **qualified**.



1926.1419 (h)

Only one person may give signals to a crane at a time.

Exception: Anyone who becomes aware of a safety problem must alert the operator or signal person by giving the stop or emergency stop signal.

Make sure the job site descriptions are identified, such as the south side of the building or the loading dock, etc.

Signals to operators must be by hand, voice, audible or new signals:

How do you determine which to use?

- » The signals must be appropriate for the site conditions



What must you do if communication can't be maintained?

1926.1419 (d) - (f)

- » Stop operations until signals can be re-established.

What are "new" signals?

- » Signals other than hand, voice or audible signals may be used where the employer demonstrates that: (1) The new signals provide at least equally effective communication as voice, audible, or standard method hand signals, or (2) The new signals comply with a National Consensus Standard that provides at least equally effective communication as voice, audible, or standard method hand signals.

Standard signals must be used unless voice communication equipment (telephone, radio, or equivalent) is available.

Voice Signals

Each voice signal shall contain three elements stated in the following order:

1. Function and direction.
2. Distance and/or speed.
3. Function stop.



1926.1421 (b)

ACCEPTABLE voice signals:

- 'Hoist' or 'raise the load'
- 'Lower'
- 'Raise boom' or 'boom up'
- 'Lower boom' or 'boom down'
- 'Extend boom' or 'telescope out'
- 'Retract boom' or 'telescope in'
- 'Use main hoist'
- 'Use whip line' or 'use auxiliary hoist'
- 'Stop'
- 'Trolley in'
- 'Trolley out'
- 'Raise boom and lower the load' or 'boom up and lower the load'
- 'Lower boom and raise the load' or 'boom down and raise the load' or 'boom down and hoist the load'
- 'Swing right'
- 'Swing left'

Examples of proper signaling from ASME:

- Swing right 50 feet, 25 ft., 15 ft., 10 ft., 2 ft. Swing stop.
- Lower load 100 ft., 50 ft., 40 ft., 30 ft., 20 ft., 2 ft. Lower stop.
- Hoist load slow, slow, keep hoisting, slow, Hoist stop.

Telephones and radios must be tested before lifting operations begin.



1926.1420 (a)

OSHA has specific requirements for using electronic devices for signals.

What is the OSHA standard covering electronic communications?

» 1926.1420

What is the major requirement regarding the operator's use of electronic devices?

» They must be received by a hands-free system. OSHA 1926.1420(c)

What must be done before operations are started?

» The devices must be tested on site to ensure the signal is effective, clear and reliable.

Visual Signals

Communication between the operator and signal person must be maintained during all movement.

If at any time communication is disrupted, the operator shall stop all crane movements until communication is restored and proper signal is given and understood.

The operator must stop all movement if he or she has concerns over an unclear signal and not resume until the issue has been resolved.

Any communication other than established signals requires the crane to be stopped.

The operator will stop if the signal is not understood.

Signals must be discernible at all times and understood before any response is made.

The operator will stop if no signal is given or heard. Example: boom up 10 ft. and if no signal is heard within a reasonable time the operator will stop and reconfirm that communication is still established.



ASME B30.5-3.3: Signals
5-3.3.1 General Signals
5-3.3.2 Standard Signals
5-3.3.3 Signal Person Qualifications
5-3.3.4 Standard Hand Signals
5-3.3.5 Standard Voice Signals
5-3.3.6 Special Signals
5-3.4.5 Operating Near Power Lines

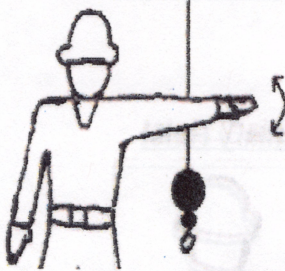
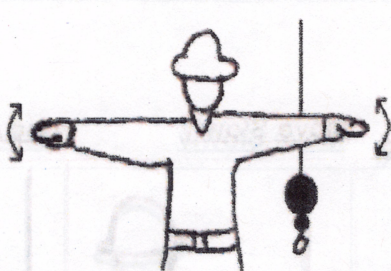
All signal persons must be tested by a designated person.

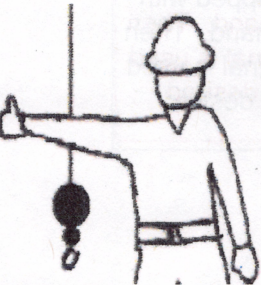
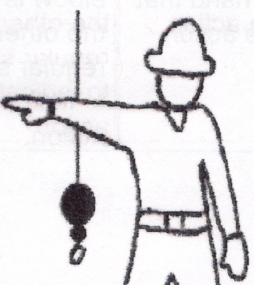
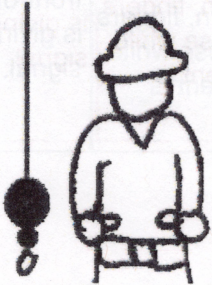
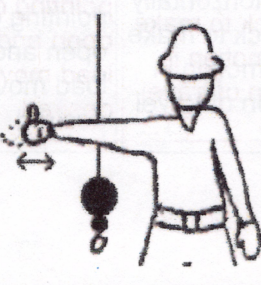
General knowledge of crane operation and experience will be required. The signal person must have knowledge of boom deflection and dynamic load etc. Qualifications must be demonstrated in the types of signals used.

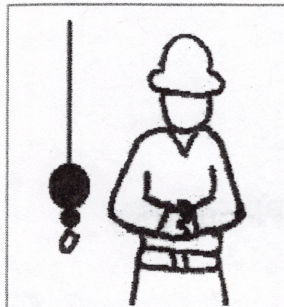
- Basic understanding of crane operation and limitations.
- Standard hand signals.
- Standard voice signals.

Hand signal charts must be either on the equipment or conspicuously posted in the vicinity of the hoisting operations.

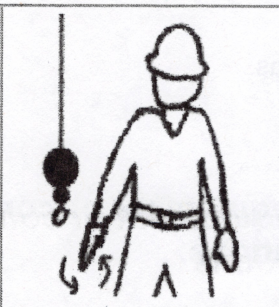
Standard Hand Signals

<u>STOP</u>	<u>Emergency STOP</u>	<u>Hoist</u>
		
With arm extended horizontally to the side, palm down, arm is swung back and forth.	With both arms extended horizontally to the side, palms down, arms are swung back and forth.	With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles.

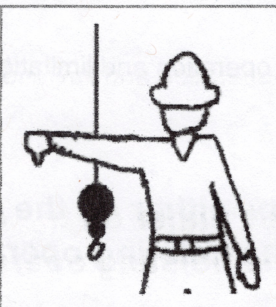
<u>Raise Boom</u>	<u>Swing</u>	<u>Retract Telescoping Boom</u>	<u>Raise the Boom and Lower the Load</u>
			
With arm extended horizontally to the side, thumb points up with other fingers closed.	With arm extended horizontally, index finger points in direction that boom is to swing.	With hands to the front at waist level, thumbs point at each other with other fingers closed.	With arm extended horizontally to the side and thumb pointing up, fingers open and close while load movement is desired.

Dog Everything

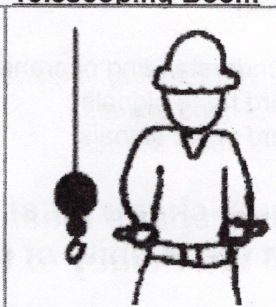
Hands held together at waist level.

Lower

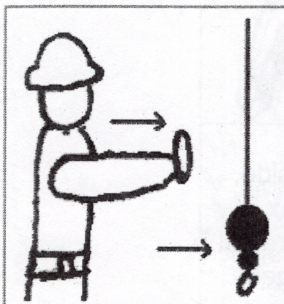
With arm and index finger pointing down, hand and finger make small circles.

Lower Boom

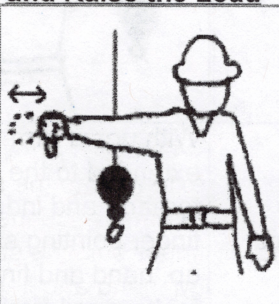
With arm extended horizontally to the side, thumb points down with the other fingers closed.

Extend Telescoping Boom

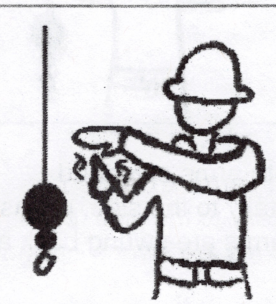
With hands to the front at waist level, thumbs point outward with other fingers closed.

Travel/Tower Travel

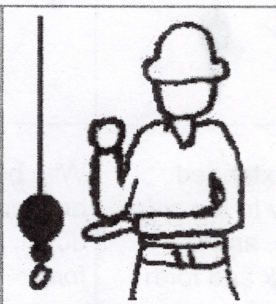
With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel.

Lower the Boom and Raise the Load

With arm extended horizontally to the side and thumb pointing down, fingers open and close while load movement is desired.

Move Slowly

A hand is placed in front of the hand that is giving the action signal.

Use Auxiliary Hoist

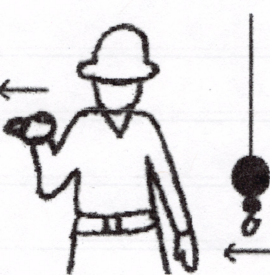
(whipline)-With arm bent at the elbow and forearm vertical, elbow is tapped with the other hand. Then regular signal is used to indicate desired action.

Crawler Crane
Travel, Both Tracks

Use Main Hoist

Crawler Crane Travel
One Track

Trolley Travel

			
Rotate fists around each other in front of body; direction of rotation away from body indicates travel backward; rotation towards body indicates travel forward.	A hand taps on top of head. Then regular signal is given to indicate desired location.	Indicate track to be locked by raising fist on that side. Rotate other fist in front of body in direction that other track is to travel.	With palm up, fingers closed and thumb pointing in direction of motion, hand is jerked horizontally in direction trolley is to travel.

Notes: